WHAT IS CLAIMED IS:

1. An apparatus, comprising:

a body, wherein the body is configured to fit within a barrel of a gun; and

a directed energy weapon within the body, wherein the directed energy weapon is configured to project a beam of directed energy along a length of the barrel upon firing.

2. The apparatus of claim 1, wherein the directed energy weapon comprises a high-energy (HE) laser.

3. The apparatus of claim 1, wherein the directed energy weapon comprises a self-contained laser with sufficient reactants to fire the laser at least one time.

4. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to initiate firing of the directed energy weapon.

5. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to assess relative position of a target with respect to an optical axis of the directed energy weapon and to initiate firing of the directed energy weapon.

6. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to receive at least one signal corresponding to a position of a target and to assess the position of the target based on at least one received signal.

7. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to receive at least one signal corresponding to motion of a target, and wherein at least one of the processors is further configured to assess motion of the target based on at least one received signal.

8. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to receive at least one signal corresponding to motion of a target to assess motion of the target based on the at least one received signal, to assess when the target will be substantially aligned with the directed energy weapon based on the motion of the target, and to initiate firing of the directed energy weapon when the target is expected to be substantially aligned with the directed energy weapon.

9. The apparatus of claim 1, further comprising at least one antenna element coupled to the body.

10. The apparatus of claim 1, further comprising at least one antenna element coupled to the body, wherein at least one of the antenna elements is at least configurable to detect at least one signal while positioned within the barrel of the gun.

11. The apparatus of claim 1, further comprising at least one antenna element and at least one processor coupled to the directed energy weapon, wherein at least one of the antenna elements is at least configurable to detect at least one signal while positioned in the barrel of the gun, and wherein at least one of the processors is configured to assess a position of a target based on the at least one detected signal.

12. The apparatus of claim 1, wherein the body is further configured to operatively engage a firing device of the gun.

13. The apparatus of claim 12, wherein the directed energy weapon is configured to be armed by the firing device of the gun.

14. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to estimate at least one target location where the directed energy weapon has a relatively high probability of damaging a target.

15. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to estimate at least one target location where the directed energy weapon has a relatively high probability of damaging the target and wherein at least one of the processors is at least configurable to inhibit firing the directed energy weapon when the target is at a location where the directed energy weapon has a relatively lower probability of damaging the target.

16. The apparatus of claim 1, further comprising at least one processor within the body, wherein at least one of the processors is field programmable.

17. The apparatus of claim 1, further comprising at least one processor coupled to the directed energy weapon, wherein at least one of the processors is at least configurable to assess at least two potential positions of a target and assess an expected position of the target based on the at least two potential positions.

18. The apparatus of claim 1, further comprising at least one antenna element coupled to the body, wherein at least one of the antenna elements is at least configurable to detect the at least one signal while positioned within the barrel of the gun such that the barrel of the

gun shields at least one of the antenna elements from at least a portion of electromagnetic energy proximate to the barrel.

19. The apparatus of claim 1, further comprising at least one antenna element coupled to the body, wherein at least one of the antenna elements is at least configurable to detect at least one signal while positioned within the barrel of the gun such that the barrel of the gun shields at least one of the antenna elements from at least a portion of electromagnetic energy traveling along a path that does not correspond to a direct line of sight to at least one of the antenna elements.

20. The apparatus of claim 1, further comprising at least one processor and at least one antenna element coupled to the body, wherein at least one signal received by at least one of the antenna element is usable by at least one of the processors to assess a relative position of the target with respect to an optical axis.

21. The apparatus of claim 1, further comprising at least one programmable processor coupled to the directed energy weapon, wherein at least one of the programmable processors is configured to receive program instructions which configure the programmable processor to initiate firing of the directed energy weapon based on programmed conditions.

22. The apparatus of claim 1, further comprising a loading system coupled to the gun, wherein the directed energy weapon is configured to be loaded into the barrel via the loading system.

23. The apparatus of claim 22, wherein the loading system is an automated loading system.

24. The apparatus of claim 1, further comprising a spent shell ejection system, wherein the directed energy weapon is configured to be removed from the barrel via the spent shell ejection system.

25. The apparatus of claim 24, wherein the spent shell ejection system is an automated spent shell ejection system.

26. A system, comprising:

a gun comprising a gun barrel;

a gun pointing system, wherein the gun pointing system is configured to point the gun toward a target; and

a laser weapon disposed within the gun barrel, wherein the laser weapon comprises a laser weapon cartridge and at least one antenna.

27. The system of claim 26, further comprising a loading system coupled to the gun, wherein the laser weapon cartridge is configured to be loaded into the gun barrel via the loading system.

28. The system of claim 26, further comprising a spent shell ejection system, wherein the laser weapon cartridge is configured to be removed from the gun barrel via the spent shell ejection system.

29. The system of claim 26, wherein the gun pointing system is further configured to track the target over a period of time.

30. The system of claim 26, further comprising at least one radar system, wherein at least one of the radar systems is configurable to assess a position of the target.

31. The system of claim 26, further comprising at least one radar system, wherein at least one of the radar systems is configureable to transmit at least one radar signal, and wherein at least one antenna of the laser weapon is configured to detect the at least one radar signal transmitted by the at least one radar system.

32. The system of claim 26, wherein the laser weapon comprises a high-energy laser.

33. The system of claim 32, wherein the laser weapon comprises sufficient reactants to fire the laser at least one time.

34. The system of claim 26, wherein the laser weapon further comprises at least one processor, wherein at least one of the processors is configurable to initiate firing of the laser weapon.

35. The system of claim 26, wherein the laser weapon further comprises at least one processor, wherein at least one of the processors is configurable to assess a relative position of the target based on data gathered by the at least one antenna and to initiate firing of the laser weapon.

36. The system of claim 26, wherein the laser weapon is configured to operatively engage a firing device of the gun to couple with an external component of a fire control system.

37. The system of claim 26, wherein the laser weapon is configured to be armed by a firing device of the gun.

38. The system of claim 26, wherein the laser weapon further comprises at least one processor, wherein at least one of the processors is configurable to estimate at least one target location where the laser weapon has a relatively high probability of damaging the target.

39. The system of claim 26, wherein the laser weapon further comprises at least one processor, wherein at least one of the processors is configurable to estimate at least one target location where the laser has a relatively high probability of damaging the target and wherein at least one of the processors is configurable to inhibit firing the laser weapon when the target is at a location where the laser weapon has a relatively lower probability of damaging the target.

40. The system of claim 26, wherein pointing the gun toward the target comprises pointing the gun such that the at least one antenna has a substantially direct line of sight to the target.

41. The system of claim 26, wherein the laser weapon further comprises at least one processor, wherein at least one of the processors is configurable to assess a relative position of the target based on data gathered by the at least one antenna and to initiate firing of the laser weapon, wherein determining relative position of the target comprises determining at least two potential positions of the target and determining a relative position of the target based on the at least two potential positions.

42. The system of claim 26, wherein the gun barrel shields the at least one antenna from at least a portion of electromagnetic energy proximate the gun barrel.

43. The system of claim 26, wherein the gun barrel shields the at least one antenna from at least a portion of electromagnetic energy traveling along a path that does not correspond to a direct line of sight to the at least one antenna.

44. The system of claim 26, wherein the laser weapon further comprises at least one processor in communication with the at least one antenna, wherein at least one signal

received by the at least one antenna is usable by at least one processor to assess a relative position of the target with respect to the optical axis.

45. The system of claim 26, wherein the laser weapon further comprises a programmable processor, wherein the programmable processor is at least configurable to receive program instructions, and wherein the program instructions configure the programmable processor to initiate firing of the laser weapon based on programmed conditions and data received from the at least one antenna.

46. The system of claim 26, wherein the gun barrel comprises rifling.

47. The system of claim 26, wherein the gun barrel is substantially smooth.

48. The system of claim 26, wherein the gun barrel has a diameter of approximately five inches.

49. A method, comprising:
providing at least one antenna element disposed within a gun barrel;
detecting at least one signal using at least one of the antenna elements from within the gun barrel; and
assessing a position of a target based on the at least one signal detected by at least one of the antenna elements.

50. The method of claim 49, wherein the at least one detected signal comprises a signal transmitted toward the target.

51. The method of claim 49, wherein the at least one detected signal comprises a signal transmitted by the target.

52. The method of claim 49, wherein the at least one detected signal comprises energy reflected by the target.

53. The method of claim 49, wherein at least one of the antenna elements within the gun barrel is provided inside the gun barrel near the breech end of the gun barrel.

54. The method of claim 49, further comprising providing at least two antenna elements are disposed within the gun barrel, and wherein determining the position of the target based on the at least one signal detected by at least one of the antenna elements comprises processing the at least one signal received by at least two antenna elements to assess a difference signal.

55. The method of claim 49, further comprising providing at least two antenna elements are disposed within the gun barrel, and wherein determining the position of the target based on at least one signal detected by at least one antenna element comprises processing the at least one signal received by the at least two antenna elements to assess whether a wave front of the at least one signal is substantially parallel with respect to a plane of the at least two antenna elements.

56. The method of claim 49, further comprising aiming the gun barrel toward the target.

57. The method of claim 49, further comprising aiming the gun barrel toward the target such that at least one antenna element has a substantially direct line of sight to the target.

58. The method of claim 49, further comprising providing a laser in communication with at least one of the antenna elements; and firing the laser when the position of the target is assessed to substantially coincide with an optical axis of the laser.

59. The method of claim 49, further comprising providing a laser disposed within the gun barrel, wherein the laser is in communication with at least one of the antenna elements; and firing a beam of laser light from the laser out of the gun barrel when the position of the target is assessed to substantially coincide with an optical axis of the laser.

60. The method of claim 49, further comprising forming an estimate of a future position of the target based on at least one signal detected by at least one of the antenna elements.

61. The method of claim 49, further comprising providing a laser in communication with at least one of the antenna elements.

62. The method of claim 49, further comprising assessing a position of the target corresponding to a relatively high probability of damaging the target with a laser.

63. The method of claim 49, further comprising assessing a position of the target corresponding to a relatively high probability of damaging the target with a laser; and firing the laser at the target if firing a laser will not preclude firing the laser at the target when the target is at the position corresponding to a relatively high probability of damaging the target.

64. The method of claim 49, further comprising assessing a future position of the target based on at least one signal detected by at least one of the antenna elements; and firing a laser at the estimated future position of the target.

65. The method of claim 49, further comprising assessing a future position of the target based on at least one signal detected by at least one of the antenna elements and further based on estimated lasing time of a laser; and firing the laser at the estimated future position of the target.

66. The method of claim 49, wherein assessing the position of the target comprises determining at least two potential positions of the target and determining the position of the target based on the at least two potential positions.

67. The method of claim 49, wherein the gun barrel shields at least one antenna element from at least a portion of electromagnetic energy proximate the gun barrel.

68. The method of claim 49, wherein the gun barrel shields at least one of the antenna elements from at least a portion of electromagnetic energy traveling along a path that does not correspond to a direct line of sight from the target to at least one antenna element.

69. The method of claim 49, further comprising providing at least one processor in communication with at least one of the antenna elements, wherein the at least one signal received by at least one of the antenna elements is usable by at least one of the processors to assess a relative position of the target with respect to the optical axis.

70. The method of claim 49, further comprising providing a programmable processor in communication with at least one of the antenna elements, wherein the programmable processor is configured to receive program instructions, and wherein the program instructions configure the programmable processor to assess the position of the target based on the at least one signal detected by at least one of the antenna elements.

71. A system comprising:

a hollow elongated member;

at least one sensor which may be disposed within the hollow elongated member, wherein at least one of the sensors is configured to gather data corresponding to a position of a target; and

a laser weapon cartridge disposed within the hollow elongated member and in communication with at least one of the sensors; wherein the laser weapon

cartridge is configured to fire automatically in response to data gathered by at least one of the sensors.

72. The system of claim 71, wherein an inner surface of the hollow elongated member is substantially smooth.

73. The system of claim 71, wherein an inner surface of the hollow elongated member comprises a plurality of projections.

74. The system of claim 71, wherein the hollow elongated member comprises a substantially circular cross section.

75. The system of claim 71, wherein the hollow elongated member comprises a noncircular cross section.

76. The system of claim 71, further comprising at least one radar system in communication with at least one aiming system, wherein at least one of the radar systems is configured to receive at least one radar signal corresponding to the position of the target and to send the data related to the position of the target to the aiming system; and wherein at least one of the sensors disposed within the hollow elongated member is configured to detect at least one radar signal corresponding to the position of the target to assess when the target is substantially aligned with a firing path of a laser optical axis.

77. The system of claim 71, wherein the laser weapon cartridge comprises a processor, wherein the processor is configured to receive data from at least one of the sensors disposed within the hollow elongated member to assess the position of the target relative to a laser optical axis.

78. The system of claim 71, wherein at least one sensor is configured to detect radar signals corresponding to a position of the target to assess when the target is substantially aligned with a firing path of the laser optical axis.

79. The system of claim 71, wherein the laser weapon cartridge comprises a processor, wherein the processor is configured to receive data from at least one of the sensors to assess the position of the target relative to a laser optical axis.

80. The system of claim 71, wherein the laser weapon cartridge comprises a processor, wherein the processor is configured to receive data from at least one of the sensors to assess the position of the target relative to the laser optical axis, and wherein the processor is further configurable to initiate firing of the laser weapon cartridge if the position of the target is substantially aligned with a firing path of the laser optical axis.

81. The system of claim 71, wherein the laser weapon cartridge comprises a programmable processor, wherein the programmable processor is configured to receive program instructions, and wherein the program instructions configure the programmable processor to initiate firing the laser weapon cartridge based on programmed conditions and data received from at least one of the sensors.

82. The system of claim 71, wherein the laser weapon cartridge comprises a processor, wherein the processor is configured to initiate firing of the laser weapon cartridge based on data received from at least one of the sensors.

83. The system of claim 71, further comprising an aiming system configured to track the target over a period of time.

84. The system of claim 71, wherein the laser weapon cartridge is configured to be removed from the hollow elongated member after firing.

85. The system of claim 71, further comprising at least one processor, wherein at least one of the processors performs an arming process to initiate gathering of position data by at least one of the sensors.

86. The system of claim 71, further comprising at least one processor, wherein at least one of the processors performs an arming process to initiate the laser weapon cartridge to begin searching for an opportunity to automatically fire.

87. The system of claim 71, wherein the laser weapon cartridge comprises a high-energy laser.

88. The system of claim 71, wherein the laser weapon cartridge comprises at least one processor, wherein at least one of the processors is configured to assess at least one target location where a laser beam has a relatively high probability of damaging the target.

89. The system of claim 71, wherein the laser weapon cartridge comprises at least one processor, wherein at least one of the processors is configured to assess one or more target locations where a laser beam has a relatively high probability of damaging the target, and wherein at least one of the processors is further configured to inhibit firing of the laser weapon cartridge when the target is at a location where a laser beam has a relatively lower probability of damaging the target.

90. The system of claim 71, further comprising an arming system, wherein the arming system aims the hollow elongated member in a desired direction comprises aiming the hollow elongated member toward the target such that at least one sensor has a substantially direct line of sight to the target.

91. The system of claim 71, wherein the hollow elongated member is configured to shield at least one of the sensors from at least a portion of electromagnetic energy proximate the hollow elongated member.

92. The system of claim 71, further comprising at least one processor in communication with at least one of the sensors, wherein signals received by at least one of the sensors are usable by at least one of the processors to assess relative position of the target with respect to an optical axis.

93. The system of claim 71, further comprising at least one processor in communication with at least one of the sensors, wherein at least one signal received by at least one of the sensors is usable by at least one of the processors to assess relative direction of the target.

94. A method of firing a weapon at a target, comprising:

detecting a signal corresponding to a position of a target relative to a firing path of a weapon with at least one sensor;

monitoring a position of the target relative to the firing path based on data gathered by at least one of the sensors; and

firing the weapon along a substantially straight firing path when the relative position of the target is assessed to substantially coincide with the firing path of the weapon.

95. The method of claim 94, further comprising arming the weapon, wherein arming the weapon initiates monitoring the position of the target relative to the firing path.

96. The method of claim 94, further comprising substantially surrounding the firing path with at least one of the sensors.

97. The method of claim 94, further comprising gathering data with at least one sensor in a pattern substantially surrounding the firing path.

98. The method of claim 94, further comprising providing at least two sensors positioned substantially symmetrically around the firing path.

99. The method of claim 94, wherein the weapon comprises a directed energy weapon.

100. The method of claim 94, wherein the weapon comprises a high-energy laser.

101. The method of claim 94, wherein at least one sensor comprises an antenna element.

102. The method of claim 94, wherein at least one of the sensors is configured to detect electromagnetic energy emitted by the target.

103. The method of claim 94, wherein at least one of the sensors is configured to detect electromagnetic energy reflected by the target.

104. The method of claim 94, further comprising providing at least one of the processors coupled to at least one of the sensors, wherein at least one processor is configured to assess the position of the target based on data gathered by at least one of the sensors.

105. The method of claim 94, further comprising providing at least one of the processors coupled to at least one of the sensors; and assessing at least one target location where the weapon has a relatively high probability of damaging the target.

106. The method of claim 94, further comprising providing at least one processor in communication with at least one of the sensors, and determining relative position of the target using the processor.

107. The method of claim 94, further comprising aiming the weapon toward the target, wherein aiming the weapon comprises orienting the weapon such that at least one of the sensors has a substantially direct line of sight to the target.

108. The method of claim 94, wherein at least one of the sensors is disposed within a barrel of the weapon, and wherein the barrel of the weapon shields at least one of the sensors from at least a portion of electromagnetic energy proximate the barrel.

109. The method of claim 94, wherein the weapon comprises a laser within a cartridge, and further comprising ejecting the laser weapon cartridge from the weapon after firing the laser.

110. The method of claim 94, wherein at least one of the sensors is disposed within a barrel of the weapon, and wherein the barrel of the weapon shields at least one of the sensors from at least a portion of electromagnetic energy traveling along a path that does not correspond to a direct line of sight to at least one of the sensors within the barrel.

111. The method of claim 94, further comprising providing at least one processor in communication with at least one of the sensors, and determining relative position of the target with respect to an optical axis of the weapon using the processor.

112. The method of claim 94, further comprising providing at least one processor in communication with at least one of the sensors, and determining relative position of the target with respect to an optical axis of the weapon using the processor.

113. The method of claim 94, wherein the weapon comprises a laser within a cartridge, and further comprising ejecting the laser weapon cartridge from the weapon after firing the laser.

114. A method, comprising:

loading a laser weapon cartridge into a ballistic gun;

aiming the ballistic gun at a target; and

arming the laser weapon cartridge to automatically fire at the target.

115. The method of claim 114, wherein the laser weapon cartridge comprises a high-energy laser.

116. The method of claim 114, further comprising placing the laser weapon cartridge into the breech of the ballistic gun using a loading system of the ballistic gun.

117. The method of claim 114, wherein arming the laser weapon cartridge further configures the laser weapon cartridge to assess alignment of a laser optical axis with the target using at least one sensor before automatically firing.

118. The method of claim 114, wherein arming the laser weapon cartridge further configures the laser weapon cartridge to assess alignment of a laser optical axis with the target using at least one sensor before automatically firing, wherein at least one of the sensors is positioned within a barrel of the ballistic gun.

119. The method of claim 114, further comprising using a firing device of the ballistic gun to initiate the laser weapon cartridge.

120. The method of claim 114, further comprising using at least one external combat system to assess a position of the target and pointing the ballistic gun toward the position.

121. The method of claim 120, wherein arming the laser weapon cartridge further configures the laser weapon cartridge to assess alignment of a laser optical axis with the target using

at least one sensor embedded in the laser cartridge positioned internal to the ballistic gun before automatically firing.

122. The method of claim 120, further comprising using a firing device of the ballistic gun to initiate the laser weapon cartridge.

123. The method of claim 114, further comprising ejecting the laser weapon cartridge from the ballistic gun after the laser weapon cartridge fires.

124. The method of claim 114, wherein the laser weapon cartridge is ejected using a spent round ejection mechanism of the ballistic gun.

125. The method of claim 114, further comprising loading another laser weapon cartridge into the ballistic gun after ejecting the previously fired laser weapon cartridge.

126. The method of claim 114, further comprising:

loading a second laser weapon cartridge into the ballistic gun after ejecting the previously fired laser weapon cartridge;

aiming the ballistic gun at the target; and

arming the second laser weapon cartridge to automatically fire at the target.

127. The method of claim 114, further comprising:

assessing whether the target was damaged by a previously fired laser weapon cartridge, and if the target was not significantly damaged by a previously fired laser weapon cartridge:

loading the second laser weapon cartridge into the ballistic gun after ejecting the previously fired laser weapon cartridge;

aiming the ballistic gun at the target; and

arming the second laser weapon cartridge to automatically fire at the target.

128. The method of claim 114, wherein the laser weapon cartridge comprises at least one antenna element and at least one processor, wherein after the laser weapon cartridge is armed, the method further comprises detecting at least one signal corresponding to a target location using at least one of the antenna elements, and assessing a position of the target based on the at least one detected signal using at least one of the processors.

129. The method of claim 114, further comprising estimating at least one target location where a laser beam has a relatively high probability of damaging the target.

130. The method of claim 114, further comprising:

estimating at least one target location where a laser beam has a relatively high probability of damaging the target; and

inhibiting firing of the laser weapon cartridge if firing of the laser weapon cartridge will preclude firing the laser weapon cartridge when the target is at a location where a laser beam has a relatively high probability of damaging the target.

131. The method of claim 114, further comprising firing the laser weapon cartridge when the position of the target is assessed to substantially coincide with an optical axis of the laser.

132. The method of claim 114, further comprising configuring the laser weapon cartridge to automatically fire at the target when specified conditions are met.

133. A method of firing comprising:

providing a weapon system comprising at least one weapon and at least one sensor;

assessing at least one opportune position of a target relative to at least one of the weapons using information from at least one of the sensors, wherein at least one of the

opportune positions comprises at least one position where at least one of the weapons has a relatively high probability of damaging the target; and

firing at least one of the weapons at the target if firing at least one of the weapons at the target will not inhibit firing at the target again when the target is at an opportune position.

134. The method of claim 133, wherein at least one of the weapons comprises a high-energy laser.

135. The method of claim 133, wherein at least one of the weapons comprises a ballistic gun.

136. The method of claim 133, wherein at least one of the weapons comprises a laser weapon cartridge disposed within a ballistic gun.

137. The method of claim 133, wherein at least one of the weapons and at least one of the sensors of the weapons system are in communication such that at least one of the weapons is fired based on information gathered by at least one of the sensors.

138. The method of claim 133, wherein at least one of the weapons and at least one of the sensors of the weapons system are in communication such that at least one of the weapons is fired automatically based on information gathered by at least one of the sensors.

139. The method of claim 133, further comprising determining target type.

140. The method of claim 133, further comprising assessing relative motion of the target.

141. The method of claim 133, further comprising assessing target range.

142. The method of claim 133, further comprising assessing a current position of the target before firing at least one of the weapons.

143. The method of claim 133, further comprising assessing a current position of the target before firing at least one of the weapons, wherein determining a current position comprises assessing at least two potential current positions of the target and determining the future position of the target based on the at least two potential current positions.

144. The method of claim 133, wherein at least one of the weapons comprises a programmable processor, and wherein the method further comprises configuring the programmable processor to fire at least one of the weapons based on programmed conditions.

145. A method of inhibiting multipath error, comprising:

providing a sensor array comprising at least two sensors to detect at least one signal;

providing at least one elongated conductive member proximate the sensor array to at least partially shield at least one sensor of the sensor array from at least one signal if a direction of arrival of at least one signal is outside an assessed angle relative to the sensor array; and

receiving at least one signal using at least one sensor of the sensor array.

144. The method of claim 145, wherein the elongated conductive member comprises a gun barrel.

145. The method of claim 145, wherein the at least one signal is reflected energy from a target.

146. The method of claim 145, wherein the at least one signal is emitted energy from a target.